



PTF1 siRNA (m): sc-76286

BACKGROUND

PTF1, also known as PTF1A (pancreas specific transcription factor, 1A) or PTF1-p48, is a pancreas-specific protein that functions as a component of the trimeric pancreas transcription factor 1 (PTF1) complex. Localizing to the nucleus, PTF1 contains one basic helix-loop-helix (bHLH) domain and is believed to play an important role in mammalian pancreatic development, functioning as a transcription factor that regulates the specification of all three pancreatic cell types. PTF1 interacts with RBP-J κ and, together, they cooperate in regulating the expression of PDX-1 (pancreas/duodenum homeobox protein 1), a key regulator of pancreatic islet development and insulin gene transcription in β cells. Loss of functional PTF1 can cause pancreatic progenitors to take on the normal fates of duodenal epithelia. Mutations in the gene encoding PTF1 lead to diabetes mellitus and cerebellar hypoplasia/agenesis, suggesting that PTF1 also plays an important role in cerebellar neurogenesis.

REFERENCES

1. Krapp, A., et al. 1998. The bHLH protein PTF1-p48 is essential for the formation of the exocrine and the correct spatial organization of the endocrine pancreas. *Genes Dev.* 12: 3752-3763.
2. Kawaguchi, Y., et al. 2002. The role of the transcriptional regulator PTF1A in converting intestinal to pancreatic progenitors. *Nat. Genet.* 32: 128-134.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607194. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
4. Miyatsuka, T., et al. 2007. PTF1A and RBP-J cooperate in activating Pdx1 gene expression through binding to Area III. *Biochem. Biophys. Res. Commun.* 362: 905-909.

CHROMOSOMAL LOCATION

Genetic locus: Ptf1a (mouse) mapping to 2 A3.

PRODUCT

PTF1 siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PTF1 shRNA Plasmid (m): sc-76286-SH and PTF1 shRNA (m) Lentiviral Particles: sc-76286-V as alternate gene silencing products.

For independent verification of PTF1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-76286A, sc-76286B and sc-76286C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PTF1 siRNA (m) is recommended for the inhibition of PTF1 expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

PTF1 (C-7): sc-393011 is recommended as a control antibody for monitoring of PTF1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG λ BP-HRP: sc-516132 or m-IgG λ BP-HRP (Cruz Marker): sc-516132-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG λ BP-FITC: sc-516185 or m-IgG λ BP-PE: sc-516186 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PTF1 gene expression knockdown using RT-PCR Primer: PTF1 (m)-PR: sc-76286-PR (20 μ l, 509 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.